Clinicopathological Conference
Hurd Hall
December 6, 2005

A 54-year-old man with cough and shortness of breath

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Faculty Discussant
Origins of the CPC

- Walter B. Cannon – Harvard medical student

“The idea of using printed records of cases as centres of interest in studying medicine occurred to me some two years ago. Since that time I have been watching carefully for every possible opportunity to apply the method, and have tried to see all the objections which might be raised against the plan. It was only when I was fully convinced that a study of real histories could be made feasible that the scheme was brought forward.”

Address to the Boston Society for Medical Improvement, March 5, 1900
Cannon’s Inspiration

- Roommate was a Harvard law student
- Law students “…learn their law not by dreary grubbing at text-books or lecture notes, but by vigorously ‘threshing out a case’ with one another”
Salient Features of the Case

- Demographics
- History
- Physical Exam
- Laboratory Data
- Radiographic Data
- Other Data
**Salient Features of the Case**

- **Demographics**
  - 54 year old man

- **History**
  - 2 months of symptoms
  - 2 courses of antibiotics without improvement
  - Abnormal chest and sinus CT
  - Dry cough, DOE, night sweats, anorexia, wt. loss, pleuritic CP
  - Smoker; owns horse; lives on Eastern Shore, travel to Midwest and California

- **Physical Exam**
  - $O_2$ sat $\downarrow$ with exertion
  - Inspiratory crackles

- **Laboratory Data**
  - Normal WBC, 19% eosinophils
  - Normal BMP and U/A
  - ↑↑ESR, ↑CRP

- **Radiographic Data**
  - Patchy ground glass/alveolar infiltrates, mid- to upper lungs
  - Mediastinal/hilar adenopathy

- **Other Data**
  - No obstruction on spirometry
  - Normal ECG
Generating a Differential Diagnosis

- Vascular
- Infection
- Neoplasm
- Drugs
- Inflammatory / Idiopathic
- Congenital
- Autoimmune
- Trauma
- Endocrine / Metabolic
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What Are the Pertinent Positives?

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Is Infection Likely?

- 2 courses of antibiotics without improvement
  - Probably not bacterial
- Travel to Midwest and California
  - Histoplasmosis?
  - Coccidioidomycosis?
- Eosinophilia
  - Parasitic?
- No evidence of immune dysfunction
  - TB and PCP unlikely
Is Infection Likely?

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Could It Be Cancer?
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- Primary lung cancer
  - Bronchoalveolar cell carcinoma (BAC)
  - Adenopathy usually not present with BAC

- Pulmonary lymphoma
  - Infiltrates too extensive
    - Exception: Angioimmunoblastic lymphadenopathy with dysproteinemia (AILD) – but generalized adenopathy usually present

- Lymphangitic carcinomatosis
  - Infiltrates not characteristic
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Generating a Differential Diagnosis

- Vascular
- Infection
- Neoplasm
- Drugs
- Inflammatory / Idiopathic
- Congenital
- Autoimmune
- Trauma
- Endocrine / Metabolic
Features of Autoimmune Diseases

- Constitutional symptoms
- Joint and muscle involvement
- Skin involvement
- Renal involvement
- Elevated ESR and CRP
- Positive serologies
Features of Autoimmune Diseases

- Constitutional symptoms
- Joint and muscle involvement
- Skin involvement
- Renal involvement
- Elevated ESR and CRP
- Positive serologies

Nonspecific
Generating a Differential Diagnosis

- Vascular
- Infection
- Neoplasm
- Drugs
- Inflammatory / Idiopathic
- Congenital
- Autoimmune
- Trauma
- Endocrine / Metabolic
Generating a Differential Diagnosis

- Vascular
- Infection
- Neoplasm
- Drugs
  - Inflammatory / Idiopathic
- Congenital
- (Autoimmune)
- Trauma
- Endocrine / Metabolic
Salient Features of the Case

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Earliest sign of interstitial lung disease (correlates with ↓DLCO)
Differential Diagnosis
Inflammatory/Idiopathic Disorders

- Sarcoidosis
- Chronic eosinophilic pneumonia
- Bronchiolitis obliterans organizing pneumonia (BOOP)
- Hypersensitivity pneumonitis
- Desquamative interstitial pneumonia (DIP)
- Pulmonary alveolar proteinosis
Desquamative interstitial pneumonia (DIP)
Pulmonary alveolar proteinosis (PAP)
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Sarcoidosis

- Peak age: 10-40 years
- Physical exam: clear lungs
- 75% have mediastinal/hilar adenopathy
- Mid- to upper-lung predominance
- 25% have eosinophilia (usually < 6% of diff)
- 50% have ↑ESR (usually modest)

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<table>
<thead>
<tr>
<th></th>
<th>CEP</th>
<th>BOOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak age</td>
<td>30-40</td>
<td>50-60</td>
</tr>
<tr>
<td>Crackles</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Upper lung predominance</td>
<td>+/-</td>
<td>+/-</td>
</tr>
<tr>
<td>Mediastinal/hilar nodes</td>
<td>20-43%</td>
<td>25-36%</td>
</tr>
<tr>
<td>Peripheral eosinophilia</td>
<td>66-90%</td>
<td>20-40%</td>
</tr>
<tr>
<td>↑↑ESR</td>
<td>70%</td>
<td>70-80%</td>
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What about the response to treatment?
Differential Diagnosis
Inflammatory/Idiopathic Disorders

- Sarcoidosis
- **Chronic eosinophilic pneumonia**
- Bronchiolitis obliterans organizing pneumonia (BOOP)
- Hypersensitivity pneumonitis
- Desquamative interstitial pneumonia (DIP)
- Pulmonary alveolar proteinosis
• Final Diagnosis
  – Chronic eosinophilic pneumonia

• Diagnostic Procedure
  – Fiberoptic bronchoscopy with bronchoalveolar lavage (BAL) and determination of cell count of (BAL)

• Treatment
  – Corticosteroids